



**Inspiring minds**

JSC's summer education outreach efforts help teachers learn how to use the space program to inspire young minds. Story on Page 3.



**Video tour**

Guides such as Gail Fortson show employees how to save travel funds by using JSC's Video Teleconferencing Facility. Photo on Page 4.

# Space News Roundup

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No. 24

## \*NASA returns to satellite rescue business

**Kyle Herring**

NASA will return to the satellite rescue business on the Space Shuttle *Endeavour's* maiden voyage, attaching a new booster to the stranded Intelsat.

The International Telecommunications Satellite Organization's (Intelsat) board of governors voted Wednesday to accept an offer from NASA to rescue the satellite, which has been in a 300 nautical mile orbit since March.

"We are very pleased to be able to

assist Intelsat and to have an opportunity to once again demonstrate the versatility of the space shuttle," Space Shuttle Program Director Bob Crippen said late Wednesday. "The rescue offers us the opportunity for expanding our experience base in the planning, training and performance of extravehicular activity."

The telephone, television and data distribution satellite failed to separate properly from its Titan booster on

March 14. Since then, engineers at Intelsat headquarters in Washington, D.C., and at satellite-builder Hughes Aircraft in California, have monitored its health.

Meetings at JSC between NASA and Intelsat laid out the possibilities and scenarios for a rescue mission.

"The quickness with which a rescue plan was proposed and accepted is a reflection of the excellent working relationship developed

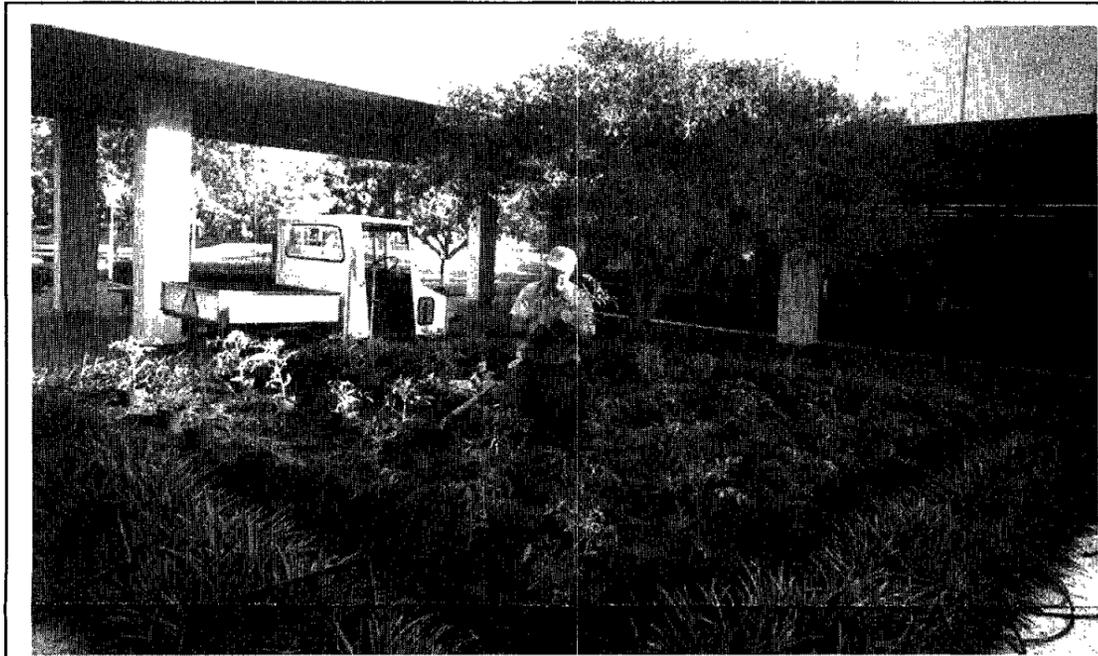
in the past between the Space Shuttle Program and the commercial satellite industry," Crippen said.

The plan for the mission, baselined as STS-51 in February 1992, calls for *Endeavour's* crew to rendezvous with the satellite, attach a new booster and re-deploy the spacecraft and booster so that it can complete its trip to geostationary orbit 22,300 miles above the Earth.

The rescue scenario has *Endeav-*

our carrying a 20,000 pound booster motor in a cradle up to the Intelsat. Using the robot arm, the as yet unnamed crew will bring the satellite into the orbiter's payload bay where spacewalking crew members will attach the satellite to its new booster.

Once the satellite is released from the shuttle's arm, *Endeavour* will be maneuvered a safe distance away before commands are sent by Intelsat control to ignite the motor.



JSC Photo

**T'MATER MATTERS**—Groundskeeper Julian Candosa plants tomatoes grown from space-exposed seeds in the breezeway of Bldg. 2. The seeds from which they have grown flew in space for nearly six years aboard the Long Duration Exposure Facility (LDEF) as part of the Space Exposed Experiment Developed for Students (SEEDS). The plants are being grown in a joint effort by the Public Affairs Office's education program and Center Operations.

## \*Columbia rolls back; Atlantis to roll out to vacated pad 39A

**By Kyle Herring**

Space Shuttle *Atlantis* will roll to Launch Pad 39A Monday to undergo final preparations for next month's launch on the STS-38 Defense Department mission.

The crew for the 36th shuttle mission—Commander Dick Covey, Pilot Frank Culbertson and Mission Specialists Bob Springer, Carl Meade and Sam Gernar—is scheduled to fly to the launch site for the terminal demonstration test Wednesday and Thursday.

Once *Atlantis* is at the pad, validation tests will begin to verify all connections with launch pad systems.

While *Atlantis* was prepared for its journey to the pad, *Columbia* was brought back to Kennedy Space Center's Vehicle Assembly Building (VAB) and demated from its external tank. Engineers now have access to the area between the orbiter and tank and are attempting to isolate a hydrogen leak discovered during tanking for the STS-35 mission in late May.

Once demated, *Columbia* was lowered to the floor of the VAB and transferred back to the Orbiter Processing Facility (OPF).

A visual inspection showed nothing out of the ordinary in the disconnect area that could cause the leak. The umbilical interface on the external tank will be removed and returned to the vendor for detailed inspection, and a new one will be installed on the tank.

*Columbia* will remain in the OPF until the tank, with its new umbilical, is ready once again for the mating process.

If the leak is not located, *Columbia's*

disconnect will be removed and inspected. Under either scenario, *Columbia* could be ready to launch the Astro-1 payload in mid-August.

"We hope we find the problem on the external tank side of the disconnect so we don't have to disturb the orbiter half of the system," said Mike Conley, JSC vehicle manager for *Columbia*.

While in the OPF, *Columbia's* landing gear will be lowered and the tires will be inflated to the required pressure. All tires routinely leak a small amount and must be reserviced while the orbiter is in the OPF.

The Broad Band X-Ray Telescope (BBXRT) also will be reserviced with argon used to keep the instrument cool.

Following the STS-35 mission, *Discovery* will carry the Ulysses solar probe into space in October on the STS-41 mission.

Inspectors are continuing to look for any damage to *Discovery's* payload bay door, which flexed on one end for a short period of time during a mishap last Monday.

"All preliminary investigations so far have looked great," *Discovery* Vehicle Manager Dave O'Brien said.

*Atlantis* will be launched in November on the STS-37 mission to release the Gamma Ray Observatory. Also on that flight, Mission Specialists Jerry Ross and Jay Apt will conduct the first extravehicular activity since return-to-flight to test the Crew and Equipment Translation Aid.

The final flight of 1990 will be the STS-40 Spacelab Life Sciences (SLS-1) mission aboard *Columbia*.



## JSC people earn NASA honors

Astronaut Robert L. "Hoot" Gibson and Space Shuttle Program Deputy Director Brewster H. Shaw Jr. will receive the NASA Distinguished Service Medal during this year's NASA Honor Awards ceremonies.

Both earned the award for commanding their second shuttle missions in 1989; Gibson for STS-27, and Shaw for STS-28.

Harry I. Horii, STS avionics subsystems engineering director of Rockwell International's Downey, Calif., facility, is winner of the NASA Distinguished Public Service Medal.

JSC Director Aaron Cohen and Deputy Manager for Space Station Freedom Systems Integration Richard A. Thorson, two of the 13 JSC people who will receive the

NASA Outstanding Leadership Medal, will receive their awards at NASA Headquarters with Gibson, Shaw and Horii.

Cohen and Deputy Director Paul J. Weitz will present the rest of the awards for JSC employees during a NASA Honor Awards Ceremony at 2 p.m. Thursday in Teague Auditorium. Employees are encouraged to attend as their duties will permit.

Also receiving the NASA Outstanding Leadership Medal will be John W. Aaron, Space Station Projects Office manager; Jack C. Boykin, deputy manager of Orbiter and GFE Projects; Wayne L. Draper, comptroller; John R. Garman, deputy director of Information Systems; Jack R. Lister, Human Resources director;

and Daniel A. Nebrig, associate center director.

Astronauts who will receive Outstanding Leadership Medals are Michael L. Coats, Frederick D. Gregory, Steven A. Hawley, Ph.D., David M. Walker and Donald E. Williams.

The NASA Exceptional Scientific Achievement Medal will go to Andrew E. Potter Jr., Ph.D., Planetary Science Branch chief.

The NASA Exceptional Engineering Achievement Medal will go to Frank J. Benz, a test engineer at White Sands Test Facility, and David A. Wolf, M.D., chief engineer in the Biomedical Operations Research Branch.

NASA Exceptional Service Medals have been earned by John E. Blaha, Please see **HONOR**, Page 4

## Hurricane Survival Checklist

## Hurricane season here

**By Pam Alloway**

Summer's here, school's out and, as of June 1, hurricane season has begun.

Most people don't worry about hurricanes until news reports alert them of a developing storm system. But a group of dedicated emergency preparedness and response workers at JSC are readying the center for the 1990 hurricane season.

This year's robust construction on site will present a challenge to emergency workers and contractors who will take special care with loose objects. Contractors will be responsible for securing their work areas before they leave the center.

"There is an awful lot of construction on site this year," said Bob

Gaffney, JSC's emergency planning officer and chief of the Security Operations Branch. "We had some construction last year but not this much."

Every June 1 the center's severe weather preparedness plans move to action Level I or a state of continual preparedness, said JSC emergency response officials.

There are two recorded telephone services at JSC that will carry information about hurricane closings: the Emergency Information Line, x33351, which is used to provide information on potential storms, plans and procedures for safeguarding work areas, and information throughout the year on other area emergency services.

Please see **HURRICANE**, Page 4

- The elevation of your home above mean sea level. Source: Harris/Galveston Coast Subsidence District, 486-1105.
- The maximum storm surge height which might occur in your area. Source: Nearest Weather Service Office.
- The route you would travel to safety.
- The location of the nearest Civil Defense or Red Cross shelter.
- The inventory of your property and what your insurance will cover.

If a hurricane warning is issued, act promptly:

- Begin a continuous communications watch by monitoring TV or radio weather broadcasts. Discount rumors.
- Prepare your residence and property for high winds by securing all outside objects, protecting large windows and exposed glass, and moving small boats or trailers close to the house and weighting them down.
- Check mooring lines of boats in the water and then leave them.
- Move valuable and personal papers to highest points.

If you decide to remain at home:

- Remain indoors.
- Stay away from exposed windows and glass doors.
- Stay on the downwind side of the house.
- Keep a continuous communications watch.
- Keep calm.

If you must leave home:

- Make sure there is a safe refuge within reach that can accommodate you. Leave early, in daylight if possible.
- Don't travel farther than necessary. Close and lock all windows and doors.
- Carry survival supplies, important papers, and at least one change of clothes.

Important numbers:

**Emergency Information Line, x33351**  
**Employee Information Service, x36765**

JSC

# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays.

General Cinema (valid for one year): \$3.75 each.  
 AMC Theater (valid until May 1991): \$3.50 each.  
 Sea World (San Antonio, year long): adults, \$17.25, (2-day, \$21.95); children (3-11) \$14.75, (2-day, \$18.95).  
 Astroworld (valid 1990 season): season, \$39.95; regular, \$15.97; children, \$9.21; Waterworld, \$8.15; 2 day—AW/WW, \$18.47.  
 Spaceweek 1990 Banquet (6:30 p.m. July 16, South Shore Harbour Resort & Conference Center): \$35 each (before 7/1/90), \$40 each (after 7/1/90).

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# Gilruth Center News

**Sign up policy**—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth Recreation Center and show a badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance. No sign ups are taken by phone. Payment by exact change or check.

**EAA badges**—Dependents and spouses may apply for a photo I.D. 6:30 p.m.-9:30 p.m. Monday-Friday.

**Defensive driving**—Course is offered from 8 a.m.-5 p.m. July 21 and Aug. 18; cost is \$15.

**Weight safety**—Required course for those wishing to use the Rec Center weight room. The next classes will be from 8-9:30 p.m. June 21; cost is \$4.

**Aerobics and exercise**—Both classes are ongoing. Sign up at the Rec Center.

**Summer softball sign-ups**—Sign-ups will be held the week of June 19 at the Rec Center.

**Men's Open "C" Softball Tournament**—The tournament will be June 30. The entry fee is \$95, limited to 16 teams, and is due June 28 by 6 p.m.

**Ballroom Dance**—Classes begin Aug. 2 and meet every Thursday for 8 weeks. Beginning and advanced classes meet 7-8:15 p.m. Intermediate class meets 8:15-9:30 p.m. Cost is \$60 per couple.

**New way to start your day!**



The JSC Employee Information Service now is updating its reports at 8:30 every morning. For the latest information on what's happening at JSC, from seminars to crew return ceremonies, the JSC Employee Information Service has what you're looking for.

The recorded announcement can be reached by calling: **483-6765**

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Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside RM. 147 in Bldg. 2.

## Property

Sale: Friendswood 3-2-2 w/Gunite pool, 2,000 sq. ft., new paint/carpet, fans, \$88,500. 483-4902 or 996-9128.

Sale: Bayhouse on Caranchua Bay near Palacios, furn., access to ramp/pier, \$40K. (409) 543-2052.

Sale: 2-1, carpet, fans, gar., wkshp., 7 lots, 17 mi. S. of Livingston, Wild Country Lake Estates. (409) 327-2500 or (409) 365-2848.

Sale: Lot at Rayburn Country, on Lake Sam Rayburn, Jasper, TX, owner fin. 645-0008.

Sale: Pebblebrook condo, 1-1, FPL, W/D, refrig. w/ice maker, 9.8% conven. assum. fixed rate. x37426 or 326-5200.

Lease: Lg. 1-1.5 condo, new carpet/appl., 2 patios, pools, wgt. room, sauna, sec. sys., CL area, \$500/mo. 486-4016.

Lease: Camino So., 3-2-2, auto, gar., CA, \$725/mo. Mike, 282-3156 or 480-9575.

Sale: Lot on wtrfrnt. at Bay Oaks Harbor in Baytown. Rick, x36159 or (409) 925-4588.

Lease: Bay Glen, new 2-story, 4-2.5-2, game room, garden bath, no pets, \$1,150/mo. Sylvia, x34255 or 280-8723.

Rent: Lake Livingston wtrfrnt. house, 3-2, CA/H, furn., cov. decks, pier, ex. cond., wknd./wk. rates. 482-1582.

Sale: 60 acres on Hwy. 80, 3 mi. from Karnes City, TX; 2-story house in El Campo on 1.5 lots, fruit trees. 783-9164.

Sale: Waterview lots near NASA, mid \$30's. Don, x38039 or 333-3313.

Rent: Galv. condo, Seawall & 61st, sleeps 6, furn., wknd./wk. rates, cable. x33479 or 486-0788.

Sale: Galveston timeshare, 2-2, furn. cond., sleeps 6, pool, hot tub, steam/wgt. room, 45 min. from JSC, \$12K. Steve, 483-8204.

Lease: Sagemeadow, 4-2-2, FPL, formal DR, pvt. cryd., avail. after June 29, \$725/mo. plus dep. 480-0667.

## Cars & Trucks

'83 Nissan PU, standard sport, black, well maint., AM/FM, air, orig. owner, sunroof, \$2,800. Pete, 480-8190.

'88 Acura Integra LS, 27K mi., PW, PL, AM/FM/cass., ex. cond., \$12,000, OBO. 996-8410.

'88 Chev. Corsica, low mi., PS, PB, auto., \$6,950. 482-8637.

'74 Mercury Capri, V6, 4-spd., air, AM/FM, good cond., low mi., \$1,500 or trade for sm. PU in good cond. 483-6565 or 532-1812.

'87 Hyundai Excel, 1.5 liter, 4-cyl., 5-spd., new tires/batt., 3-dr., low mi., \$4K. Patrick, x32635 or 488-1079.

'84 Honda Civic 4-dr. sedan, auto., AM/FM auto reverse cass., ex. cond., \$3,450, OBO. Vic

or Karen, 334-2335 or 282-3216.

'85 Toyota SR5 Extra Cab, 4x4, 5-spd., lift-kit, ex. cond., \$6,250, OBO. Mike, 331-2022.

'79 Ford Granada, 109K mi., ex. cond., needs paint, \$395. T. Edwards, 483-0480.

'70 Pontiac Firebird, ex. cond., \$1,750, OBO. Larry, x31235 or 482-6357.

'75 164E Volvo, motor needs repairs, \$1,200 nego. 482-4923.

'88 Mustang LX hatchback, ex. cond., 5-spd., AM/FM/cass., \$7,200. 333-6935.

'87 Chev. Cavalier, 4-dr., loaded, 45K mi., ex. cond. x39579 or 482-6187.

'88 Hyundai GL, 4-dr. sedan, 5-spd., sunroof, ex. cond., warr., BO. Becky, x31420 or 488-0556.

'84 Chrysler Fifth Ave., loaded, well maint., 55K mi., \$5,900. Paul, x34232 or 488-5077.

'84 Cherokee Jeep, 4 WD, auto., V6, 4-dr. Pioneer pkg., \$5K. 283-5837 or 333-1602.

'87 Toyota PU, 32K mi., 5-spd., new tires, ex. cond., \$6,500. Kelvin, x36921 or 488-8173.

'84 Buick Skyhawk, auto., \$2,250 nego. 482-8637.

'85 Buick Electra Park Ave., 4-dr., all pwr., ex. cond., 66K mi., new tires, \$6,700. 482-1535.

'71 Triumph Spitfire Mark IV, new top/carpet/tires/batt., alternator/starter, \$3,200. Clay, 282-4005 or 880-2327.

'69 Camaro 307, auto., PS, AM/FM cass., morphology-9, physiology-2, \$1,200. Clay 282-4005 or 880-2327.

'86 Mercury Cougar, loaded, 61K mi., good cond., \$6K. Tammy, 488-9020 or 534-2668.

'80 Pontiac Sunbird, 2-dr. coupe, good cond. Tammy, 534-2668 or 488-9020.

'59 Studebaker Lark, 2-dr., flat head, standard, good cond., \$950, OBO. 530-7079.

'81 King Cab 4x4 truck needs work, \$800, OBO. Sequita or Mike, 332-7492.

'88 Acura Integra Special Ed., ext. warr., \$12.5K, OBO. 483-2381.

'81 Chev. Caprice diesel, 29K mi., loaded, \$1,150 cash. 280-5159 or 326-2986.

'74 Mustang II Ghia, V6, 4-spd., needs work, good cond., \$650; '82 Merc. LN7, 4-spd., sunroof, \$1,500; '76 Buick Riv. 455 turbo \$400. Robert, 534-2460.

'81 Chev. Caprice diesel, 29K mi., loaded, \$1,150 cash. 280-5159 or 326-2986.

'74 Mustang II Ghia, V6, 4-spd., needs work, good cond., \$650; '82 Merc. LN7, 4-spd., sunroof, \$1,500; '76 Buick Riv. 455 turbo \$400. Robert, 534-2460.

## Cycles

Pinarello racing bike, campy rec. group (some shimano 600), good cond., \$500. 488-6514.

## Boats & Planes

Sailboat, Capri 14.2, rarely used, ex. cond., \$2,500, OBO. Craig, x36206 or 280-0176.

'78 22' MacGregor, 3 sails, 7.5hp OB, trlr., \$4K, OBO. 332-7167.

Kayak, paddle, spray skirt, \$200. Craig, x36206 or 280-0176.

'16' Hobie Cat, 2 sets sails/harnesses/traps, \$900, OBO. John, 483-8988 or 482-6364.

'21' Venture sailboat w/trlr., good cond., life jackets, \$1,800. Ray, x33401 or 339-1957.

'14' Jon Boat, 7.5hp Johnson, \$475. x31226 or 534-3710.

'18' Hobie Cat, galv. trlr., sail box, life jackets, \$1,650. x31226 or 534-3710.

'21' deep V w/cuddy cabin, PS, trim tabs, 260 Mercuriser OD, \$4,900 nego. 326-4684.

JSC

# Dates & Data

## Today

**Space society meets**—The Houston Space Society will discuss "Industrial Pollution, Space Solutions" at 7:30 p.m. June 15 in the Atlantic Room, University of Houston. Bill Agosto, President of Lunar Industries Inc., will speak. For more information call 639-4221.

**MPAD wake and reunion**—The Mission Planning and Analysis Division (MPAD) plans a wake and reunion (W&R) for the now-defunct division. All former civil service MPAD'ers are invited to the 4-8 p.m. June 15 event at the Gilruth Recreation Center pavilion. For more information, call Gloria Martinez at x38091.

**Flashback to the '50s**—A variety dance will be held from 7 p.m.-1 a.m. June 15, at the Rec Center. For more information, contact Dick McMinimy, x34037.

**Cafeteria menu**—Special: tuna and noodle casserole. Entrees: liver and onions, deviled crabs, roast beef with dressing. Soup: seafood gumbo. Vegetables: whipped potatoes, peas, cauliflower.

## Monday

**Technology utilization**—The Technology Utilization (TU) Office of JSC will present its recently developed video on how the TU program works and how it can benefit you at 2 p.m. each Monday June 18-July 9 on JSC Closed Circuit Television, channel 19. Spinoffs, awards, and engineering application projects will be discussed. For more information, call Dean Glenn at x33809.

**Cafeteria menu**—Special: breaded outlet. Entrees: beef chop suey, Polish sausage with potato salad. Soup: French onion. Vege-

tables: okra and tomatoes, green peas.

## Tuesday

**Juneteenth Picnic**—The NASA/JSC Black Cultural Association (BCA) will hold its annual Juneteenth Picnic from 11 a.m.-6 p.m. June 19 at the Rec Center pavilion. Deadline for purchasing tickets for this event is noon June 18. For ticket information, contact Spurgeon Robinson at x31444, LeBarian Stokes at x38965, or Jackie Wilson at x30278.

**Cafeteria menu**—Special: fried chicken. Entrees: Salisbury steak, shrimp Creole. Soup: split pea. Vegetables: mixed vegetables, beets, whipped potatoes.

## Wednesday

**ISMCR symposium**—JSC's Automation and Robotics Division will host the first International Symposium on Measurement and Control in Robotics (ISMCR) June 20-22 at the Rec Center. Astronaut Story Musgrave will be keynote speaker. Sessions will run from 8 a.m.-5 p.m. daily, with the conference ending at noon June 22. For more information call Mary Stewart at x31724 or Dr. Zafar Taqvi at 333-6544.

**JSC Astronomy Seminar**—The seminar will be an open discussion meeting from noon-1 p.m. June 20 in Bldg. 31, Rm. 129. For more information contact Al Jackson at x33709.

**Cafeteria menu**—Special: stuffed bell pepper. Entrees: fried catfish with hush puppies, braised beef rib, BBQ plate, wieners and beans, shrimp salad. Soup: seafood gumbo. Vegetables: corn O'Brian, rice, Italian green beans.

## Thursday

**NASA Honor Awards**—JSC Director Aaron Cohen and Deputy Director Paul J. Weitz will present this year's NASA Honor Awards at 2 p.m. June 21 in Teague Auditorium. For more information, call Helen Harris at x38412.

**Cafeteria menu**—Special: BBQ smoked link. Entrees: beef Stroganoff, turkey and dressing. Soup: chicken noodle. Vegetables: lima beans, buttered squash, Spanish rice.

## Friday

**Cafeteria menu**—Special: meat sauce and spaghetti. Entrees: baked scrod, liver and onions, fried shrimp. Soup: seafood gumbo. Vegetables: green beans, buttered broccoli, whipped potatoes.

## June 26

**BAPCO meeting**—The Bay Area PC Organization will meet at 7:30 p.m. June 26 at the League City Bank & Trust. For more information call Earl Rubenstein, x34807, or Tom Kelly, 996-5019.

## June 27

**JSC Astronomy Seminar**—The seminar will be an RUVT (Rice University Video Tape) on Dr. Craig Wheller—"Massive Stellar Evolution in the Large Magellanic Cloud" from noon-1 p.m. June 27 in Bldg. 31, Rm. 129. For more information call Al Jackson, x33709.

## June 28

**NASACOM meeting**—NASA-COM (a Commodore's Users' Group) will meet at 7:30 p.m. June 28 at the Clear Lake Park building. For more information, Contact Glenda at x31764.

# Swap Shop

'79 16' Renegade ski boat, 140hp Evinrude, SST prop, trlr., new seats/paint/wiring, ex. cond., \$3,250, OBO. 333-6868 or 486-7846.

## Audiovisual & Computer

Minolta CR 1200S AF VHS video cam. w/bag, tripod, \$500; Pioneer CLD-1010 multi-size disc LaserVision player w/movies, \$450; Multitec 2-head VCR, \$75. 472-0232.

IBM-XT 640K, 2 floppy drives, monitor, tons of software, \$825. Kyle, 481-2195.

Star NX-1000 multi-font NLQ printer (IBM compat.), w/cable I/F, ex. cond., \$190. Lonnie, 282-2731 or 482-0547.

386-20 MHz computer, 1 Meg RAM exp. to 8 Meg, 800x600 VGA, 40 Meg HD, \$2,075. 474-9259.

AT&T 6300, 20 Meg HD, 640K, modem, Panasonic KX-P1091 printer, \$950. 488-2091.

Apple II computer, monitor, new citizen printer, 2 disc drives, modem, SW, \$500. Don, x34205 or 488-8105.

Stereo tube preamp/tuner, McIntosh, \$300, OBO. x32381.

PC-AT 80286 12.5 MHz (fast) EGA graphics, 3.5 and 5.25 high density floppies plus 40 Meg fixed disk and 1 Meg of RAM. x31367 or 996-1410.

Household

Solid cherry colonial wtrbd., incl. kingsz. wtrbd. w/heater, dresser, full length mirror, nightstand, \$2,200. 335-2227 or 482-8637.

Sofa/loveseat, beige, peach, sage, contemp., \$250; multi pastel sofa, \$250; 2 recliners, \$75/ea. mike, 282-3795 or 996-6438.

Soma, queensz. motionless wtrbd., frame, \$250. x39105 or 335-1250.

DR table, glass top, brass base, 6 cane backed chairs w/uphol. seats, ex. cond., \$200, OBO. Anne, x34493 or 996-1287.

25" RCA console TV, works fine, beautiful cab., \$125. Charlie, x3k4647 or 488-4412.

New king wtrbd., oak w/bkcs., access., \$350; wicker loveseat, 2 chairs, \$25. Karen, 283-5658 or 554-2971.

Mauve sofa, \$95; 3 in 1 table game-bumper pool, card, \$225; 6 oak chairs, \$100/ea. 480-8668.

6-pc. LR, rattan modular, neutral uphol., matching swivel chair, square coffee table/smoked glass top; 2 bar stools, 2 end tables, BR 6 pcs., \$500. 333-1602.

2 beige bar stools, ex. cond., \$60/ea., OBO. Debbi, x38102 or 488-6768.

Stand. kingsz. Restonic semi-motion wtrbd w/frame, ex. cond., \$250. hal, x30503 or 488-2273.

Musical Instruments

Korg Trident MKII, performance synthesizer, analog synth., splittable 3 voice, 8 note polyphonic keyboard, \$350 or trade for bass amp. 483-6565 or 532-1812.

Yamaha piano-type keybd., Model MF-10, ex. cond., bench, sprk./amp, \$1K. Bob, 483-8691 or Jean, 559-2325.

Yamaha ME-10 synthesizer/organ, incl. amp sprks., ex. cond., \$850. Jesse at 280-5914 or 4867-5220.

Grand piano, polish ebony, 5' 10", 8.5 mos. old, 10 yr. full warr., will pay for delivery, \$6,200 nego. Joe, 483-3477 or 946-8198.

## Photographic

Pentax 35mm cam. w/wide angle and zoom lens, auto./computer elec. flash, case, ex. cond., \$150. Oma, x30367.

Cam. lenses for Konica (TC) mount, 28mm/3.5, 50mm/1.7, 135mm/3.2 and 2X tele., ex. cond., \$150. Charlie, x34647 or 488-4412.

Minolta cam. lens, 50mm/1.7 MD, \$35; Nikon auto. focus lens, AF 50mm, f1.8 Nikkon, new, \$40. 464-8694.

## Pets & Livestock

Baby cockatiels, hand tamed/raised/fed, normal grays and peds. Linda, 484-7834.

Free pups, del. date approx. July 4, sire mixed Beagle, bitch mixed Dachshund (white). Aaron Brown, 944-0493.

AKC Shelly pups, 6 wks. old. Bob A., x34409 or 393-1670.

Brittany Spaniel, AKC, 6 M, all shots. Jenny, 485-1083.

## Wanted

Want Texas saltwater stamp prints, '86-'88. 479-1004.

Want Volvo 15" Turbo Wheel, 5 spokes, in good cond. Vincent, x30874 or 333-1316.

Want roommate M/F, non-smoker to share 3 BR house in LC, \$250/mo. plus 1/3 util. Scott, 3355-4182 or 33k2-0478.

Want non-smoking fem. to share house in CL, \$300/mo. plus 1/3 util. Sharon, 486-4016.

Want GBC binder punch unit for church. Don, x38039.

## Miscellaneous

Lifecycle exer. bike, LC 600 aerobic trainer w/computerized display/control of counter motive force, elec. motor resistance, state-of-art, \$1,500. Patrick, x32635 or 488-1079.

Reptile tank, 100 gal., custom built, all wood, \$175. 332-7167.

Kirby upright vacuum w/many attach., \$85; Singer Model 237 zig-zag sewing mach., \$80. 472-0232.

Computer desk, printer table, \$65; antique davenport table, \$70; blue 6x9 Oriental rug, \$55, all ex. cond.; Sears color TV, good cond., \$25. 479-1004.

Engagement ring, 18 karat yellow gold, round diamond solitaire, .68 carats w/6 round diamonds, .18 carats, \$1,200. x30874 or 333-1316.

PU topper, all alum., fullsz., \$90; OBO. 280-1579 or 482-5536.

Sears Kenmore, lg. cap. micro w/temp. probe and mem., \$150. Pam, x34304 or 480-6959.

Smith Corona elec. typewriter, \$75; Smith Corona manual typewriter, \$25, OBO. 483-0554 or 486-4369.

Sunbeam Oskar Jr. mini-food proc

# Motivating Young Minds

## JSC education specialists teach teachers how space can help them reach students



By Kelly Humphries

This summer's program of educational activities at JSC promises to be as busy as usual, if not more, as members of the Education Office broaden their efforts to reach students of all ages.

The goal is to "turn kids on about math and science and learning in general" and the primary medium is their teachers, according to JSC Education Specialist Jim Poindexter.

During the school year, Poindexter and his colleagues—civil servants Norma Kersman and Tommie Walton, and contractors Shirley Herbst, Jim Gerard, Angelo Casaburri, Gordon Edskridge and Charles Anderson—try to use space to motivate students directly. More than 25,000 students attend programs at JSC each year.

But during the summer, their attention turns to the teachers, which Poindexter says is just as important as reaching the children. The education experts in the JSC Public Affairs Office's Public Services Branch can reach as many as 800 students in a one-shot assembly program, but each teacher they reach can make contact with 30 to 50 students an hour all school year long.

"We sort of shift gears as the schools do," Poindexter said.

Increasing the awareness of both students and teachers is important to NASA as an agency and to its people in their roles as citizens of America the world, said JSC Public Affairs Director Hal Stall.

A recent "Workforce 2000" survey indicated that by the year 2000, there will be a shortfall of between 400,000 and 750,000 college graduates in the science and engineering fields, he explained.

"NASA can't stand that prospect," Stall said. "We must continuously refresh our pool of technical talent with youngsters coming out of colleges and universities."

The makeup of America's workforce also will have changed significantly, he said, with a much higher percentage of women and minorities competing for careers in science.

Those groups are underrepresented on today's college campuses. NASA hopes it can help encourage young students in those groups to get the basic education they will need later so they have an opportunity to choose whether they want to be a scientist or engineer.

JSC's education program also is designed to help teachers and their students understand what engineers and scientists do in the real world.

"We've got to do something to inspire these little minds while they are still in middle school and junior high because by the time they're seniors in high school, the die is cast," Stall said.

Poindexter said that while at JSC, the teachers get an in-depth education about manned space flight and a complete run-down on the information and resources available. They also learn how they can use the enthusiasm the space program generates to encourage their children to learn a host of other lessons.

"If, after a teacher comes through here he or she doesn't know the answer to a child's question, that's okay," Poindexter said. "If they don't know where to get the answer, that's our fault."

This summer, teachers who visit JSC for these intensive workshops will learn about the two newest tools available, the JSC Telelecture Program and the JSC Adopt-A-School Program.

The Telelecture Program, patterned after one begun by Langley Research Center, will open a telephone link between speakers at JSC and students in their own classrooms, said Norma Kersman, program coordinator.

Travel expenses, time constraints and schedule conflicts will no longer be a barrier to teachers who want to make a person-to-person connection between their students and the JSC speakers who can help spark imaginations and reinforce the importance of learning.

"Telelecture is a low-tech solution to a high-tech problem," Stall said. It employs standard communications

technology—some of which was developed for the space program—and uses it to help develop a rapport between the scientists and engineers of today and tomorrow.

Prior to the lecture, a speaker is selected from among 14 members of JSC's Speakers Bureau who volunteered for Telelecture duty. Kersman then sends a set of slides to the teacher and arranges a phone meeting between the teacher and speaker to discuss details. When the call is made and the 30-minute lecture begins via classroom speaker phone, the teacher follows along with the slide show. When the prepared lecture is over, a 30-minute question and answer session begins.

The trial period for Telelecture began in April and continues through August. Five lectures involved classrooms of students, but now that school is out the program is focusing on showing teachers how the process works. During tests with students, teachers reported that the lecturers held the class' attention well and that the question and answer period often exceeded the time allotted.

"It really excited the kids," Kersman said. "Maybe they can't have these people come to visit them, but they have that interaction of people talking to them over the phone. They have a NASA expert on the phone."

Early Telelectures were conducted from the speakers' offices, but the program now has a quiet, private room set aside in Bldg. 2, she said.

Kersman said that when the program becomes full-fledged, it will be able to reach between five and 10 classes of 40 to 60 students each week, potentially 7,000 to 10,000 students of all ages each year. The program will need more qualified volunteers to support a growing schedule, she said.

"Helping with education isn't just the Education Office's job," Stall agreed. "It's everybody's job."

The second new program, Adopt-A-School, is just getting started, said Tommie Walton, program coordinator. The idea is for NASA to adopt a predominantly minority school and

develop a continuing connection that fosters an interest in learning and an understanding of how to set and reach lifetime goals.

"The main thing is to get the kids' attention—get their minds away from drugs and crime," Walton said. "You have to reach them on their level. You also have to use yourself as an example: in order to do this, I had to do this first."

JSC plans to adopt Woodson Middle School first to try out the concept. If it is successful, a total of two or three Houston inner-city schools may be adopted.

Walton said he expects the program to develop into a series of fairly regular events, speakers and field trips that use NASA astronauts, engineers and scientists to encourage the students' interest in mathematics, the sciences and staying in school.

"The carrot here is the excitement of space flight," Poindexter said. "If we never fly another mission, we've already got enough to talk about for decades."

The summer teacher workshop schedule at JSC kicks off this week with a two-day visit from 40 Oklahoma State University-sponsored teachers who will learn about NASA's programs and the educational support available to an eight-state region through JSC. The Oklahoma Aeronautics Commission is helping fund the visit.

JSC's region includes Texas, Oklahoma, Kansas, Nebraska, North and South Dakota, Colorado and New Mexico.

Also this week, Aerospace Education Specialists will take JSC's Spacemobiles to Fort Hays State University in Kansas, Chadron State College in Nebraska, Temple (Texas) Independent School District, and Imperial (Neb.) Grade School and provide information about NASA to teachers there.

The week of June 18-22, 45 teachers from across Tennessee will spend a week at JSC. The teachers will be airlifted here by the Tennessee Air National Guard, and their visit will be partially funded by the Tennessee Education Association. At the same

time, traveling specialists will support teacher workshops in Kearney, Neb., and Grand Forks, N.D.

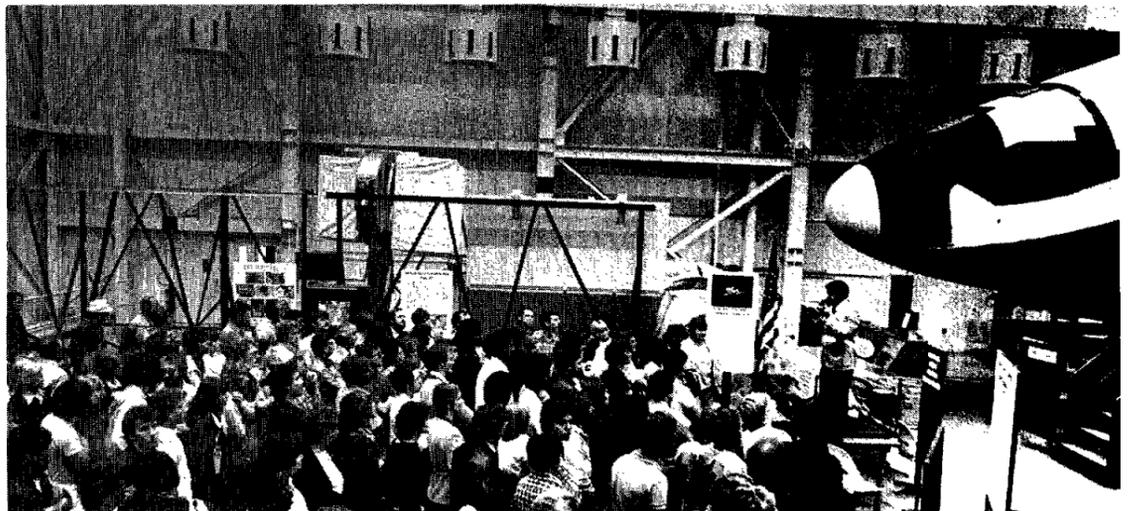
From June 24-July 6, 40 teachers from the State Department's overseas schools will be hosted here by the University of Houston. Most are American citizens, and they teach in schools around the world. Specialists will visit schools in Omaha, Manhattan and Wichita, Kan., and Sioux Falls, S.D., that week.

The week of July 8-15, 15 Canadian and 10 American teachers will spend a week at JSC as part of a workshop for the Canadian Association for Science Education. The workshop will draw teachers from across Canada, and is sponsored by NASA and the International Council of Associations for Science Education. Also that week, JSC's Spacemobiles will visit Albuquerque, Wayne, Neb., and Colorado Springs, Colo.

The week of July 15-18 will bring 23 teachers and 23 high school students from Texas here for a pilot educational workshop on the Comet Rendezvous and Flyby (CRAF)/Cassini mission to Saturn. The workshop is sponsored by the Texas Space Grant Consortium and NASA Headquarters' Solar System Exploration Division. Also that week, Spacemobiles will visit Denver, Albuquerque, and Canyon and Denton, Texas.

The week of July 22-Aug. 3, JSC will host the NASA Education Workshop for Elementary School Teachers (NEWEST). Twenty-five teachers will attend the honors program, which includes a stipend for attendance, and learn how to tap the identification young children have with the space program. The Spacemobile will visit Dodge City, Kan.

While at JSC, the educators also will be introduced to the Teacher Resource Center in Bldg. 2, where they can copy slides, audio cassettes, lesson plans and activities, NASA literature and computer programs useful in teaching about space. More than 750,000 still photographs and miles of film, videotape and audio tape are available for them to duplicate and reuse.



JSC Photos by Sheri Dunnington

Top: Angelo Cassaburri, an Oklahoma State University employee working for JSC's Education Program, allows a Sundown Elementary School student in Katy to try on an extravehicular mobility unit (EMU) space suit during his auditorium presentation. Left: Cassaburri shows four Sundown students how to launch model rockets. During the school year, Spacemobile visits such as this one help ignite young students' interest in math and science. Above: Education Specialist Jim Poindexter shows visiting teachers the space shuttle trainers in Bldg. 9A. During the summer, JSC's education program concentrates on teaching teachers about space so that they can teach their students.

# Outreach moves forward, opens door for ideas

NASA took the next steps Wednesday in its Space Exploration Initiative (SEI) Outreach Program to solicit innovative ideas on how to return to the Moon permanently and to begin human exploration of Mars.

The steps included a mass mailing from NASA Administrator Richard H. Truly to institutions and individuals, the announcement of a telephone number for public requests for response packets and publication of

an announcement soliciting ideas in the Commerce Business Daily, which reaches both aerospace and non-aerospace industries.

In a related development, George W.S. Abbey has been named as the senior NASA person in support of Lt. Gen. Thomas P. Stafford, the retired astronaut who is chairing the Synthesis Group that will coordinate screening and assessment of SEI proposals.

Abbey, former JSC Flight Crew Operations director, now becomes special assistant to Arnold Aldrich, associated administrator for Aeronautics, Exploration and Technology. Thomas E. Utsman, former deputy director of Kennedy Space Center, replaces Abbey as deputy associate administrator in the Office of Space Flight.

In his personal solicitation, Truly sent more than 3,200 letters to

presidents of U.S. colleges and universities, deans of engineering schools, chairs of college and university science and engineering programs, presidents of science and engineering professional associations and others.

He asked for ideas on mission concepts and their architectures and for ideas on the systems and technologies required for travel to the Moon and Mars and for living and

working productively on both worlds. His letter included a response packet to be forwarded to the RAND Corp. in Santa Monica, Calif. NASA asked RAND to conduct an initial analysis and evaluation of the responses.

RAND has established a toll-free telephone number for requesting an SEI Outreach response packet. The number is 1-800-877-7796.

Truly announced the program's establishment May 31.

## Top honors recognized

(Continued from Page 1)

Lawrence S. Bourgeois Jr., Robert G. Brown, James F. Buchli, John H. Casper, Franklin R. Chang-Diaz, Ph.D., Mary L. Cleave, Ph.D., Jervy J. Conwell, Lawrence O. Corcoran Jr., Mark K. Craig, William G. Davis, Paul D. Dell'Osso, Peter Gillette, Ronald J. Grabe, Ted A. Guillory, John C. Harpod, James R. Jaax, Maurice G. Kennedy and Harold F. Kosel.

Exceptional Service Medals also go to James A. Lawrence, Mark C. Lee, David C. Leestma, Shannon W. Lucid, Ph.D., John J. Maca III, Humboldt C. Mandell Jr., Grady E. McCright, John E. McIver, I. Keith McQuary, Joseph E. Mechelay, William J. Moon, Richard M. Mullane, F. Story Musgrave, Ph.D., John E. Petersen Jr., Joe E. Pouzar, Donald E. Robbins, Ph.D., Duane L. Ross, Jerry L. Ross, John H. Starnes, Charles L. Stough, William Hal Taylor Jr., Norman E. Thagard, M.D., John J. Thiel, Bobby K. Vermillion, Tommie L. Wheeler and H. Wayne Whittington.

NASA Public Service Medals will be presented to Gordon W. Fasbender of Boeing and Marshall E. Johnsey of Ford Aerospace.

NASA Group Achievement Awards will go to the Advanced Space Suit Development Test and Evaluation Program Team, the Lunar and Mars Exploration Initiative Team, the Class VI Computer System Team, the Flight Design and Dynamics Division Launch and Landing Evaluation Teams, the NSTS Orbiter Ferry Team, the Orbiter and Spacelab Flight Data File Book Managers, the Photography and Television Technology Division, the Replacement Structural Spares Evaluation Team, the Security Division, the Sequencing Redesign mode Team, the Space Station Heat Pipe Advanced Radiator Element Flight Experiment Team and the Stabilized Payload Deployment System Team.

The NASA Public Service Group Achievement Award will be presented to Jefferson Associates Inc.



JSC Photo by Mark Sowa

**VIDEO VISION**—Cheri Harrison of the Information Systems Directorate's Information Technology Division runs the control panel for a demonstration of the JSC Video Teleconference Room. The demonstration was part of last week's open house, designed to show off the facility in Bldg. 17, Rm. 2026 and encourage its use, which saves on travel expenses. The video teleconference rooms are available for anyone to use and do not incur any charges to organizations. Harrison is a Barrios Technology Inc. worker who supports Center Telecommunications Section. Anyone who wants to schedule a video teleconference should call Donna Keith at x37568. If Keith is unavailable call Harrison or Gail Fortson at x32889.

## Stamp Club commemorates station

The JSC Stamp Club will host the first stamp-collecting event to commemorate Space Station *Freedom* this weekend at the Nassau Bay Hilton on NASA Road 1.

Leon Jablonski, chairman of the Spacepex '90 show, said space station cachets will be available and the U.S. Postal Service will be there with a special show cancellation.

The free show will be open from 10 a.m.-5 p.m. Saturday and 10 a.m.-4 p.m. Sunday.

Twenty-three dealers will be available to sell stamps and supplies to stamp collectors or to buy their stamp collections.

Cachets with the Spacepex '90 cancellation also can be obtained by mailing \$1.50 with a stamped, addressed number 10 envelope to the JSC Stamp Club, P.O. Box 58247, Houston, 77258, Jablonski said.

"Over the years, the progress of Space Station *Freedom* will be the subject of much philatelic coverage," Jablonski said. "We're proud to be the first."

The JSC Stamp Club meets the second and fourth Mondays of every month at the Gilruth Recreation Center. Visitors are welcome to attend the meetings.

# Hurricane: Preparing for an unwelcome and gusty guest

(Continued from Page 1)

cies; and the Employee Information Service, x36765, which will contain information about closings during the hurricane season as they are announced. Center personnel will be notified when to return to work via those numbers and commercial radio and television reports.

If a hurricane threatened the Clear Lake area, JSC's storm preparedness plans would move up to an action Level II status and, at the discretion of Center Operations Director Ken Gilbreath, officials would open a Hurricane Command Post in Bldg. 30. If the threat became great enough, JSC Director Aaron Cohen would decide when the center should be closed and all non-essential personnel evacuated. When officials decide to evacuate, the storm preparedness plans move to an action Level III.

Because last year's hurricane season was so active on the Texas Gulf Coast, but hurricane effects were relatively light, area emergency managers expressed concern that residents would not heed warnings in time to protect themselves, their families, and property. The potential damage from hurricanes increases two to four times as the force of a hurricane increases from one level to the next.

Employees should make plans early to prepare their hurricane supplies and review evacuation routes. Supervisors also are urged to adopt liberal leave policies to allow employees time to prepare their homes, officials said.

An important part of preparing the center for closing in hurricane conditions is securing offices, a responsibility that falls upon every employee. Each employee should secure his

major buildings in the event of an approaching hurricane for employees' use but garbage bags also would protect equipment, said Keith McQuary, chief of the Plant Engineering

classified and other important materials in safe places and closing all doors.

Each JSC entity has a designated emergency planning representative and an alternate who are kept informed on the status of the action levels during a hurricane alert and have information on preparing for a hurricane. There are about 56 representatives and alternates, scattered throughout the center. This year their ranks have expanded to include a representative and alternate from the newly opened Child Care Center.

A group of 13 Area Protection Teams from plant engineering brace JSC's grounds for a storm, checking buildings, picking up loose outside objects outside and tying down possible hazards.

The hardy souls who remain at the center during a hurricane are members of the Hurricane Rideout Team. During a hurricane, members are stationed at strategic locations throughout JSC.

The center in 1983 was hit by hurricane Alicia, a category 3 hurricane on a scale of categories from one to five. Alicia left the center with a cleanup and repair bill of \$2.3 million. Last year marked a category 1 storm—Chantal—which resulted in minimal damage at the center but forced JSC to close for a full day.

Free hurricane maps are available from Gaffney, Bldg. 45, room 211. Further information also is available from any emergency planning representative, Gaffney at x34706 or McQuary at x33501. NASA-JSC

## Hurricane Terminology

**Hurricane** — A tropical storm with sustained winds greater than 75 mph.

**Hurricane season** — For the southern and eastern United States, June 1-Nov. 30. July, August and September are the months when storms are most likely to affect the JSC area.

**Hurricane advisory** — An official, numbered release issued by the National Hurricane Center. It contains information about the storm and predicts its course and intensity. Officials issue advisories every six hours or more often if necessary.

**Hurricane bulletin** — A public release issued between advisories by the National Hurricane Center, a hurricane warning office, or a local forecast office that contains current data on the storm.

**Hurricane watch** — A statement issued by the National Hurricane Center indicating there is a possibility that the storm could make landfall somewhere between the two locations that mark the watch area. Issued 48 hours before landfall.

**Hurricane warning** — A statement issued by the National Hurricane Center or other responsible National Oceanic and Atmospheric Administration/National Weather Service office indicating there is a high probability that a storm will make landfall somewhere between the two locations that mark the warning area. Issued 24 or more hours, but not less than eight daylight hours, prior to anticipated landfall.

or her individual work area, which includes unplugging computer terminals and covering them with plastic bags. Emergency workers plan to drop off plastic bags in the lobby of

Division and hurricane plan manager.

Other office preparations include raising venetian blinds to prevent additional wind damage should windows break, storing